Sharing geospatial data within the European Green Deal Data space – a technological and organisational perspective

Francesco Pignatelli, Alex Kotsev

UN-GGIM Europe Side Event: European Data Policy
The policy context around data

**European Strategy for Data:**
- Establishment of a single market for data through sector-specific data spaces.
- No explicitly geospatial data space
- Different actors interplaying in the data economy (public sector, businesses, citizens, and academia)

![Common European Data Space Diagram](image)
The technological context around data spaces

• Paradigm shift from open to shared data
• New data sources:
  • Internet of Things (IoT)
  • Citizen-generated geospatial data
  • Open FAIR research data
  • Private data
• From data collection to data connection
• Novel architectures (e.g. SOLID)
• Mature and versatile tools
• Agile standards
How to modernise INSPIRE/SDIs within European Data Spaces?
JRC Science for Policy Report

- Prepared in collaboration with ENV and Geonovum
- **Contents**
  - State of play
  - Policy and technological context
  - Lessons learned from the implementation
  - Vision for the technological evolution
  - Prototype reference framework
  - Actions and roadmap
Lessons learned
Community
Lessons learned

Data availability & E-reporting

• Improving discoverability and accessibility

• Use of INSPIRE in e-reporting.
Lessons learned

Rich ecosystem of tools

• Reuse of central INSPIRE components.
• Many client and server implementations.
Lessons learned - What does not work so well
Inappropriate organisational approaches

• Parallel implementations.
• Duplication of efforts.
• INSPIRE sometimes implemented to only check a box.
Lessons learned - What does not work so well
Rigidity in standardisation

• Adherence to specific technologies / encodings.
• Strictly following standards vs. Narrow use of standards.
• Custom extensions: Extending standards is problematic.
  • Extended capabilities.
  • GML attributes.
  • Nested structures.
Lessons learned - What does not work so well

Complexity


name:München
int name:Munich
place:city
**Vision for the future**

- INSPIRE should ‘blend in’ with the broader ecosystem of spatial and non-spatial data, infrastructures, technologies and policies.

- This will mean opening up to a broader community of implementers and users and to a wider range of applications and use cases.

- Making the INSPIRE framework more flexible and agile will significantly lower the entry level to the sharing and utilisation of data.

- Technical approaches need to be simplified by reusing well-adopted standards and technologies.
MIWP 2021-2024 Examples
‘Mainstreaming’ INSPIRE - GitHub

• GitHub works!

2 Levels of support:

Level 1 – General support that includes checking, immediate answering and moving questions to the right Level 2.

Level 2 – Provision of concrete solution.

https://github.com/INSPIRE-MIF
• Open the floor to proposals from the community.

• Transparent approach for governance of the artefacts:
  • Sub-group and facilitators.
  • Decision tree and release plan:
    • Know how to approach each issue.
    • 2 Releases are planned per year, aligned with the MIG-T Meetings.
The Toolbox

- Ensure long-term sustainability of the components
- Build strategic partnerships with communities:
  - GeoNetwork as geoportal backend.
  - Registry in OSGeo.
- Decouple tools from infrastructure.
- Extensive use of the cloud.
MIWP 2021-2024 Examples
Modernise the technological stack of INSPIRE within the remit of legislation

- **Good practices.**
- Updated Good Practice library available.
- Procedure for endorsement:
  - Step 1. Initiation.
  - Step 2. Submission as good practice candidate.
  - Step 3. Outreach.
  - Step 4. Submission.
  - Step 5. Legal scrutiny.

Conceptual integration of INSPIRE datasets and services with GAIA-X
MIWP 2021-2024 Examples GAIA-X

Data Ecosystem
Advanced Smart Services
(Cross-) Sector Innovation/Marketplaces/Applications

Data Spaces
Interoperable & portable (Cross-) Sector data-sets and services

GAIA-X Federation services
Federated & distributed for interoperability Trust & Sovereignty services

Portability, Interoperability & Interconnectivity
Technical: Architecture of Standards Commercial: Policies

Compliance
Legal: Regulation & Policies

Identity & Trust

Sovereign Data Exchange

Federated Catalogue

Compliance

Infrastructure Ecosystem
Network/Interconn. Providers
CSP (e.g. Regional, specialized, Hyperscalers)
HPC (e.g. research...)
Sector specific clouds
EDGE
GAIA-X and INSPIRE

**Contractor:** Fraunhofer IOSB

**Objective:** Hands-on evaluation of the GAIA-X architecture in the context of a relevant INSPIRE use case

**Tasks:**

1) Shortlist and prioritise INSPIRE use cases, incl. the necessary datasets and services

2) Mandatory and optional steps for implementing the selected use case

3) Conceptual implementation, incl. the necessary artefacts

4) Summary of the activities and steps towards a prototypical implementation

5) Webinar
Want to know more ...

**THURSDAY 28/10**

10:00-11:30
Modernising INSPIRE within the European Green Deal data space – a technological and organisational perspective

**FRIDAY 29/10**

10:00-11:30
Location based data for crisis management

13:30-15:00
Data exchange and harvesting - e-Reporting and thematic portals

15:30-17:00
Smart from local to global

Closing Session - Towards a Common European Green Deal data space for environment and sustainability
Location interoperability good practices – ELISE framework and support

Francesco Pignatelli

14/10/2021
UN-GGIM Europe Side Event: European Data Policy
A BIT OF HISTORY...

2004
IDABC: Interoperable Delivery of European eGovernment Services

2010
ISA: Interoperability solutions for public administrations
- Actions:
  - EULF
  - ARE3NA

2016
ISA²: Interoperability Solutions for European Public administrations, Businesses and Citizens
- ELISE

2021
DIGITAL: Digital Europe Programme

ELISE builds upon the outcomes of the former ISA actions EULF and ARE3NA. It is the only action of the ISA² Programme, aiming to improve Digital Government through Location Interoperability.

WHAT?
ELISE stands for European Location Interoperability Solutions for e-Government. It is one of the more than 50 actions in the European Interoperability Programme ISA².

WHAT FOR?
To support Digital Government Transformation by making the best use of location data and technologies in an interoperable manner.

FOR WHOM?
For all: citizens, businesses and public administrations
ELISE outputs and topics

41 Studies

1 Framework (Guidance/Monitoring)
11 Solutions

6 Applications

52 Webinars / 22 Workshops

ELISE impact in numbers

More than 10,000 interactions with ELISE over the past 6 years

Evolution of Spatial Data Infrastructures
Support of data ecosystems

Technologies for location-enabled innovation
Collaboration models

Spatial skills for Digital Government Transformation
Location data privacy

Improving access to spatial datasets
Supporting cross-border and cross-sector data sharing

Location intelligence for policy and digital public services
Supporting innovation, growth and Return of Investment

Managing data quality
Supporting the creation of common EU public services
European Union Location Framework (EULF) Blueprint – What is it?

A *European ‘location interoperability framework’* with *guidance* for the *exchange* and *use* of location information in government policy and digital public services, allied closely to the interoperability principles and scope of the *EIF*.

**5 FOCUS AREAS**

**19 RECOMMENDATIONS**

**6 ROLES**

**2 RELATED FRAMEWORKS**

**49 BEST PRACTICES**

Adoption monitored through the LIFO

Online and downloadable versions

European Union Location Framework (EULF) Blueprint | Joinup

Location Interoperability Framework Observatory (LIFO) | Joinup
LIFO Monitoring 2020

Provisional results ahead of publication in November

https://joinup.ec.europa.eu/node/704247
LIFO Interactive tool
Tailor your LIFO journey!

Choose which **level** to investigate...

...identify the **countries** you want to compare...

...and which **visualisation** (heat map, radar chart) and **recommendation/focus area/indicator** to display!

...the **year** you want to consider...

Please visit LIFO interactive tool at [https://joinup.ec.europa.eu/node/704247](https://joinup.ec.europa.eu/node/704247)
### EULF Blueprint / UN-GGIM IGIF links

**Detailed two way cross references between EULF Blueprint recommendations and IGIF strategic pathways, key elements, actions and tools**

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<td>4. Location data for policy evidence</td>
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<td>5. Standards based procurement</td>
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<td>8. Open and collaborative development</td>
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Building on ELISE for the Digital Europe Programme

**Digital Europe Programme Themes**
- High performance computing
- Cloud, data and AI
- Cybersecurity
- Advanced digital skills
- Accelerating best use of technologies

**European Location Intelligence and Technological Enablers (ELITE)**
- EULF Blueprint
- LIFO
- Data Spaces Cookbook
- Sandboxing
- ETF Validator
- Re3gistry

**Common Services Platform**
- Interoperability Academy

Source: Digital Europe Programme
Thank you
Join the *ELISE* community on

http://